

Illustration 1

g01039504

1. Thoroughly clean the gasket material from the cylinder block.
2. Install a new gasket (25) and O-ring seals (26) on the cylinder block.

Note: On newer blocks, an integral seal is used instead of O-ring seals (26) and gasket (25) .

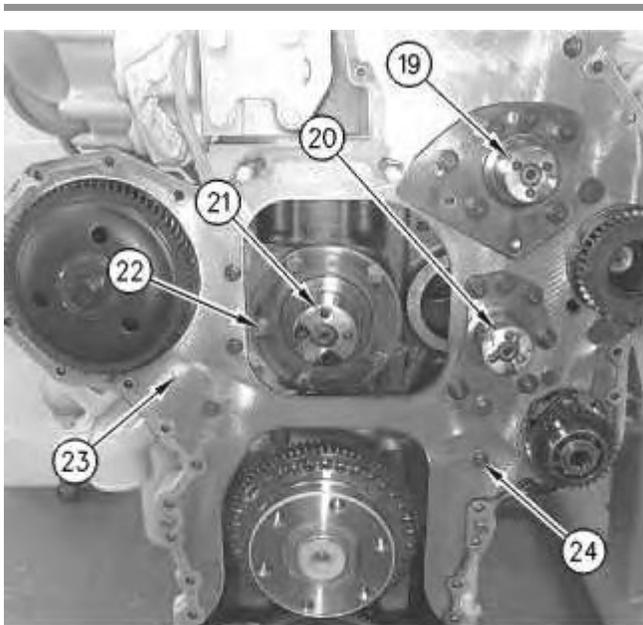


Illustration 2

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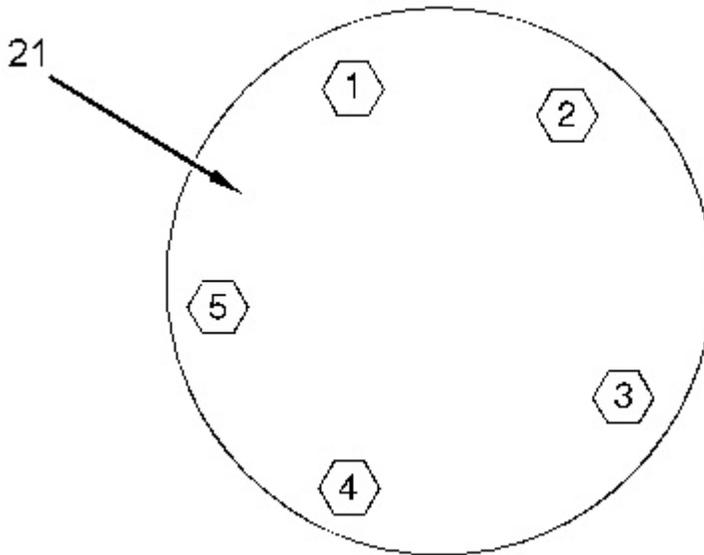


Illustration 3

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3. Thoroughly clean all gasket material from both sides of plate (23). Install plate (23) and bolts (24) .
 4. Install shaft assembly (20). Apply Tooling (B) to the studs and to the bolt for shaft assembly (20). Tighten the nuts and the bolt for shaft assembly (20) to a torque of 55 ± 10 N·m (41 ± 7 lb ft).
- Note:** The backlash for the camshaft gear and for the adjustable idler gear will need to be readjusted if shaft assembly (19) has been removed, loosened, or moved in any way. The camshaft gear must be installed and the adjustable idler gear must be removed in order to perform the backlash adjustment procedure. Refer to Testing and Adjusting, "Gear Group (Front) - Time".
5. Install shaft assembly (19). Do not tighten the nuts and the bolt for shaft assembly (19) at this time. The nuts and the bolt for shaft assembly (19) will need to be tightened when the backlash is adjusted.
 6. Apply Tooling (B) to bolts (22). Install shaft assembly (21). Tighten bolts (22) to a torque of 55 ± 10 N·m (41 ± 7 lb ft) in the following sequence: (1, 3, 4, 5, 2, 1, 2, 3, 4, 5, 1).
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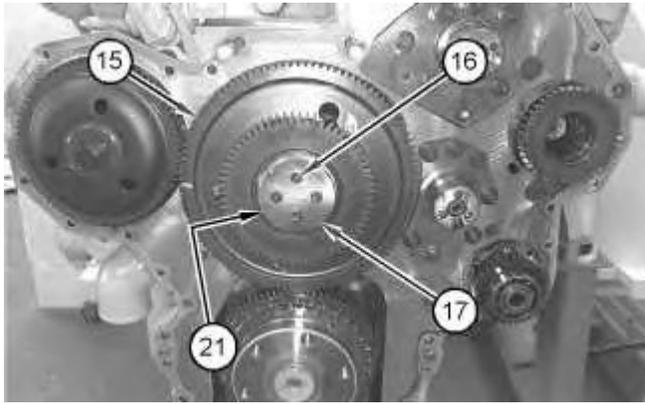


Illustration 4

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Illustration 5

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- Put cluster gear (15) on shaft assembly (21). Ensure that Timing Marks (V) are aligned on the cluster gear and on the crankshaft gear. Apply Tooling (B) to bolts (16). Install plate (17) and bolts (16). Tighten bolts (16) to a torque of 30 ± 7 N·m (22 ± 5 lb ft).

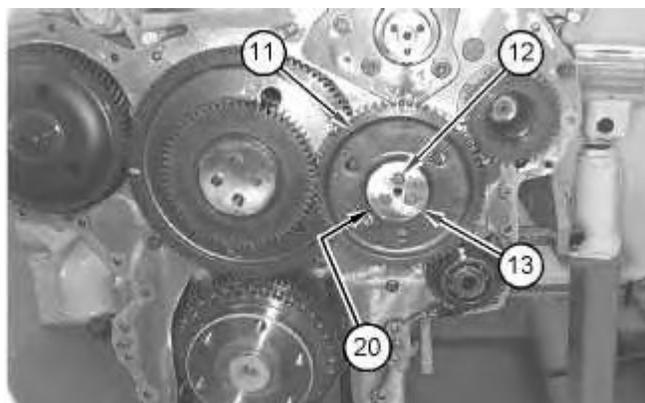


Illustration 6

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- Position idler gear (11) on shaft assembly (20). Apply Tooling (B) to bolts (12). Install plate (13) with the oil groove toward the gear face. Install bolts (12) and tighten the bolts to a torque of 30 ± 7 N·m (22 ± 5 lb ft).

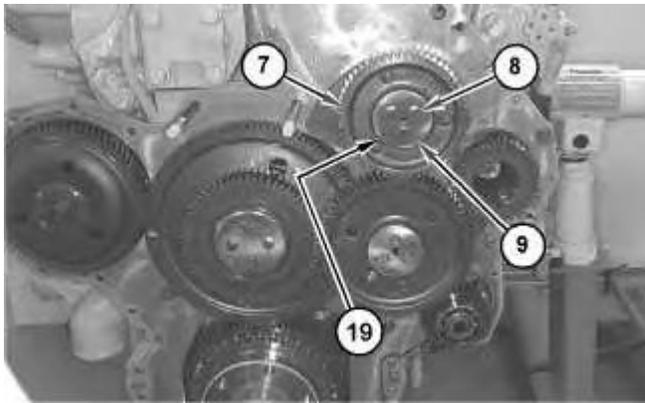


Illustration 7

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Note: Skip Step 9 if shaft assembly (19) has been removed, loosened, or moved in any way. The backlash for the camshaft gear and for the adjustable idler gear will need to be readjusted. The camshaft gear must be installed and the adjustable idler gear must be removed in order to perform the backlash adjustment procedure. Refer to Testing and Adjusting, "Gear Group (Front) - Time".

- Position adjustable idler gear (7) on shaft assembly (19). Apply Tooling (B) to bolts (8). Install plate (9) and bolts (8). Tighten bolts (8) to a torque of 30 ± 7 N·m (22 ± 5 lb ft).

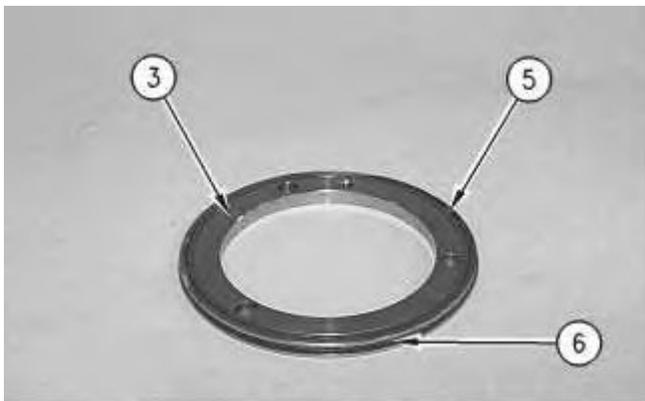


Illustration 8

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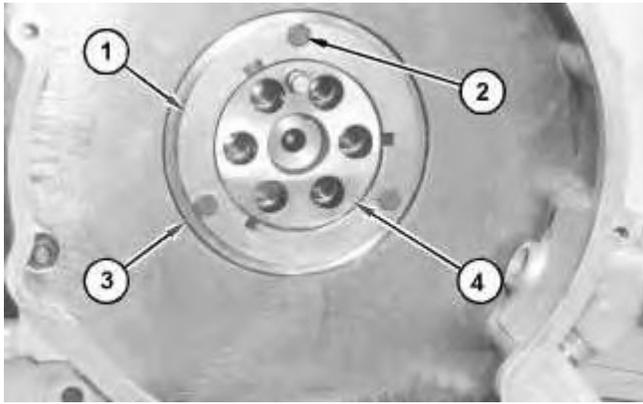


Illustration 9

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10. Install O-ring seals (5) and (6) in seal assembly (3). Lubricate seal (6) with a 50/50 mixture of Tooling (C) and engine oil.
11. Assemble thrust plate (1) and seal assembly (3). Apply Tooling (B) to bolts (2). Hold the assembly in position and install bolts (2). Evenly tighten bolts (2) until seal assembly (3) and O-ring seal (5) are seated against the cylinder head.

Note: Be careful in order to ensure that O-ring seal (5) stays in the groove in seal assembly (3) .

12. Install adapter (4). Ensure that the dowel in adapter (4) engages the hole in the camshaft.
13. Adjust the backlash for the camshaft gear and for the adjustable idler gear, if necessary. Refer to Testing and Adjusting, "Gear Group (Front) - Time".

Note: The camshaft gear must be installed and the adjustable idler gear must be removed in order to perform the backlash adjustment procedure.

End By: Install the front housing. Refer to Disassembly and Assembly, "Housing (Front) - Install".
